



US008540727B2

(12) **United States Patent**  
**Dishler et al.**

(10) **Patent No.:** **US 8,540,727 B2**  
(45) **Date of Patent:** **Sep. 24, 2013**

(54) **INSERTION SYSTEM FOR CORNEAL IMPLANTS**

(75) Inventors: **Jon Dishler**, Cherry Hills Village, CO (US); **Ned Schneider**, Aliso Viejo, CA (US); **Alan Ngoc Le**, Lake Forest, CA (US)

3,343,657 A 9/1967 Speshyock  
3,379,200 A 4/1968 Pennell  
3,482,906 A 12/1969 Volk  
3,743,337 A 7/1973 Crary  
3,770,113 A 11/1973 Thomas  
3,879,076 A 4/1975 Barnett  
3,950,315 A 4/1976 Cleaver

(Continued)

(73) Assignee: **ReVision Optics, Inc.**, Lake Forest, CA (US)

**FOREIGN PATENT DOCUMENTS**

DE 3208729 A1 9/1983  
EP 0308077 A2 3/1989

(Continued)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 20 days.

**OTHER PUBLICATIONS**

(21) Appl. No.: **13/411,425**

Schneider et al.; U.S. Appl. No. 13/549,007 entitled "Corneal Implant Retaining Devices and Methods of Use," filed Jul. 13, 2012.

(22) Filed: **Mar. 2, 2012**

(Continued)

(65) **Prior Publication Data**

US 2012/0165823 A1 Jun. 28, 2012

*Primary Examiner* — Ryan Severson

*Assistant Examiner* — Ashley Fishback

(74) *Attorney, Agent, or Firm* — Shay Glenn LLP

**Related U.S. Application Data**

(63) Continuation of application No. 11/692,835, filed on Mar. 28, 2007, now Pat. No. 8,162,953.

(57)

**ABSTRACT**

Provided therein are apparatuses, systems and methods for storing and retrieving a corneal implant and for delivering the corneal implant in or on the cornea. In an embodiment, a insertion system comprises an inserter for delivering a corneal implant to a desired location in or on the cornea. The inserter has a holding space at its distal end for holding a corneal implant therein. A solution may substantially fill the holding space with the corneal implant to keep the implant hydrated and to hold the implant in the holding space by the surface tension of the solution. The corneal implant may be preloaded in the holding space of the inserter and stored in a storage container filled with storage fluid, e.g., saline, until use. To deliver the corneal implant, the inserter is positioned at the desired location, and the corneal implant released from the holding space of the inserter.

(51) **Int. Cl.**  
**A61F 9/00** (2006.01)

(52) **U.S. Cl.**  
USPC ..... **606/107**

(58) **Field of Classification Search**  
USPC ..... 604/294; 606/107, 166; 623/4.1, 623/5.11, 5.14, 6.11–6.13  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

2,714,721 A 8/1955 Stone, Jr.  
3,091,328 A 5/1963 Leonardos  
3,168,100 A 2/1965 Rich

**10 Claims, 14 Drawing Sheets**

